

# Rodent Dentistry

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Rodents have less teeth than rabbits and tend to have yellow enamel. The murine-type small rodents (rats, mice, hamsters, gerbils) have a dental formula: Incisors 1/1, Canine 0/0, Premolars 0/1, Molars 3/3 (i.e., top/bottom teeth for half of the mouth. Multiply by 2 to get total number of teeth). They have "open-rooted" incisors that keep growing throughout their lives. The back teeth ("cheek teeth") have anatomical roots like the dog, cat, or person and the crowns do not grow once they come in. This arrangement reflects their natural dietary habits: a diet of grains, and tubers does not require a lot of chewing and the back teeth are not worn down. The incisors, on the other hand, are worn down from gnawing and need continual replacement.

Guinea pigs and chinchillas have the common formula of: Incisors 1/1, Canines 0/0, Premolars 1/1, Molars 3/3. All teeth are open-rooted and continually grow. They are true herbivores from a somewhat barren, rocky terrain of the South American Andes mountains. Vegetation is tough and high in fiber, with a low energy content. This type of diet requires a large intake of food and thorough chewing. This natural diet also results in the continual wear of the cheek teeth which have a large grinding surface and continue to grow to meet the dietary challenges.

Dental disease is the most common cause of anorexia in chinchillas. Dental conditions are also commonly seen in guinea pigs and prairie dogs, but are relatively uncommon in hamsters, gerbils, and rats. Clinical signs of dental disease are related to the oral discomfort. There is a decrease in appetite and some do not eat at all. Soft foods may be selected over the harder to chew items. Some rodents will drool and get matted fur on the chin and forepaws when they use them to clean their mouths. Weight loss is inevitable.

Dental disease in rodents encompasses a wide range of conditions from overgrown incisors, to tooth root abscesses. Unlike their human caretakers, rodents rarely get cavities and don't need to have their teeth "filled". The list below reviews some of the more common dental conditions seen in pet rodents.

Malocclusion refers to the alignment of the upper and lower teeth. When the teeth don't meet properly, there is an uneven wearing of the teeth. This results in sharp points in the back teeth and long incisors in the front. Maloccluded incisors can become "tusk-like" in severely overgrown cases. This can be seen in hamsters, gerbils, and rats. Some individuals are adept at breaking off these overgrown teeth on the cage bars. The teeth in the back of the mouth ("cheek teeth") can form sharp edges or points that can cut the cheek, gums, and tongue and make chewing painful in guinea pigs and chinchillas. These animals lose weight and condition very quickly once painful points have formed.

There are several causes of malocclusion in rodents. Genetics may play a role in some rodents. Trauma to the teeth can also result in abnormal growth patterns. Poor nutrition may result in shifting of the root of the teeth. Diets low in calcium and high in phosphorus can result in weak bones, including the jaw where the teeth are anchored. In guinea pigs, vitamin C deficiency can result in dental problems and gum bleeding. In guinea pigs and chinchillas, a diet too low in "chew factor" or roughage can cause the tooth roots and crowns to overgrow (see below). Once malocclusion is diagnosed, it is usually not reversible and affected pets will need dental care throughout their lives.

Treatment involves trimming of the sharp edges or overgrown teeth. The cheek teeth usually need to be done with the patient sedated. A small bone cutter, file, or drill can be used to smooth out the sharp points. There is also the likelihood of recurrence and the need for regular dental care (every 6-8 weeks).

Tooth root elongation is seen as a common problem in chinchillas and guinea pigs on a low roughage diet. Pellets, grains, and most vegetation do not provide enough chewing to wear down the cheek teeth and root extension can occur. The roots form bumps on the jaw and are readily seen on radiographs (X-ray's) and CT scans ("cat" scans). The upper jaw can also have root extension. These are difficult to feel but may be associated with eye problems (like excessive tearing) or respiratory problems. Oral examination may show a somewhat normal chewing surface, or the crowns may appear elongated. This condition is irreversible and may result in chronic weight loss and painful chewing. These individuals often wind-up on hand-feedings and painkillers, which exacerbates the lack of wear on the crowns. Euthanasia is sometimes requested for these chronically painful individuals.

Tooth root abscesses are a serious problem in any rodent. Most of these abscesses cannot be totally excised and recurrence is possible. Treatment consists of extraction of affected teeth and aggressive surgical debridement (removal of affected tissue). There is usually long-term follow-up care in these patients with second and third surgical procedures possible. Xray's must be taken before surgery to assess the extent of tooth root involvement and evaluate for osteomyelitis (bone infection) of the mandible or maxilla.

Prairie dogs can have incisor tooth root aberrations that can lead to upper respiratory (nasal) obstructions. Odontomas and other related space occupying masses can form at the tooth roots leading to eventual encroachment on the nasal airways. These animals normally breathe through the nose. If the nasal cavity becomes narrowed from a tooth root problem, the prairie dog can't breathe. Diagnosis is with radiographs. Corrective treatment is difficult and requires a specialized surgical technique to create a new breathing hole or nostril.

#### **References**

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